

REMARKS

Claims 1-18 are pending in this application. By this Amendment, claims 1, 4-9, 12, and 14-16 are amended and claims 17-18 are added. No new matter is added.

Applicants appreciate the courtesies shown to Applicants' representative by Examiner Nguyen in the November 15, 2005 personal interview. Applicants' separate record of the substance of the interview is incorporated into the following remarks.

The Office Action rejects claims 4, 9 and 12 under 35 U.S.C. §112, second paragraph. This rejection is respectfully traversed. Because these claims are not rejected based on prior art, it is assumed that these claims define over the art of record.

As discussed during the personal interview, claims 4 and 12 are amended for clarity and are concise and definite. As discussed in Applicants' paragraphs [0010] and [0028], a steering wheel of a vehicle often is able to rotate more than one complete rotation from lock-to-lock. That is, from a full left position to a full right position is often in excess of one revolution, such as 3 revolutions (1.5 revolutions to the right and left of center). Because of this, a steering angle sensor that senses a rotation angle ϕ may actually correspond to ϕ , $\phi+360^\circ$ or $\phi-360^\circ$. Claims 4 and 12 specify that there is one target vehicle state quantity calculated for each 360° of rotation range of the steering wheel. In other words, for a lock-to-lock power steering unit that has three full revolutions ($3 \times 360^\circ$), there would be three target quantities calculated. Examiner Nguyen agreed during the interview that these changes overcome the §112 rejection.

Claim 9 (and also claims 6-8) is amended to clarify that an average of the difference between actual vehicle state quantity and each target vehicle state quantity is calculated over a time period of n cycles. This is supported, for example, at paragraphs [0044] - [0045] where instead of using an instantaneous value, an average value over a certain time period is used. Thus, the steering angle deviation amount equals this average $\times (NH/V)$. Claim 9 is concise

and definite. Examiner Nguyen also agreed during the interview that these changes overcome the §rejection. Withdrawal of the rejection is respectfully requested.

In the Office Action, claims 1-3, 5-8, 10-11 and 13 are rejected under 35 U.S.C. §102(b) over U.S. Patent No. 4,669,745 to Miki. This rejection is respectfully traversed.

As discussed during the November 15 personal interview, no prima facie case of anticipation has been made by the Patent Office. Although the Office Action indicates that Miki discloses a steering operator (Fig. 4), a steering angle detector, a detector that detects actual vehicle state quantity, and a controller (C19/L1-10 and claim 18), the Patent Office relies on inherency (bottom of Office Action pg. 3- top of pg. 4) for the remainder of the claim features. This must fail for several reasons.

Independent claims 1 and 5 are directed to vehicular motion control apparatus that control motions of a vehicle when an exact steering position is not known. For example, with a steering unit that has three full revolutions of rotation from lock-to-lock (i.e., 1.5 revolutions to the left or right of center), knowing the absolute angle of rotation of the wheel, such as 0°, does not fully identify whether the vehicle is going straight, turning right with one complete 360° rotation of the steering wheel, or turning left with one complete 360° rotation of the steering wheel.

To estimate which of these should be the reference rotational position of the steering angle, the controller of the apparatus "calculates a plurality of target vehicle states on the basis of a plurality of steering angles estimated by the steering angle detected by the steering angle sensor." For example, as discussed during the interview, when the steering operator (steering wheel) has three rotations as in the example given above, three target values are set that estimate a vehicle state that should occur at 0°, 0°+360°, and 0°-360° rotations of the steering wheel. Then, a reference rotational position of the steering angle sensor is determined on the basis of the steering angle corresponding to the minimum difference

between the actual vehicle state quantity and the target vehicle state quantities. Once a suitable reference rotational position has been determined, motion of the vehicle is controlled based on the steering angle detected and the determined reference rotational position.

As discussed during the interview, Miki fails to teach that its controller performs any of the recited calculations, estimations or determinations. Rather, Miki appears to use a single angle value for control and thus has no need to perform the recited controller functions.

The Patent Office may not rely on inherency to remedy these notable omissions in disclosure. The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993). Instead, to establish inherency, "the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference" (emphasis added). *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999). Inherency may not be established by probabilities or possibilities. *Id.* Rather, "in relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied art" (emphasis added). *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990).

Moreover, to address the Examiner's arguments that the functional language of the controller does not need to be given patentable weight, Applicants refer the Examiner to M.P.E.P. §2173.05(g), which states that a functional limitation must be evaluated and considered "for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used." One would understand that a controller that performs these functions must be programmed or wired to do so and thus further limit the claims and further define the structure of the controller.

Because the Office Action fails to make a prima facie case that each and every feature of independent claims 1 or 5 are necessarily present in Miki, these claims and claims 2-4 and 6-13 dependent therefrom are not anticipated by Miki. Moreover, as discussed, Miki clearly fails to teach that there is one target value estimated for each 360° rotation of the steering operator within the rotation range of the steering operator as recited in dependent claims 4 and 12. Withdrawal of the rejection is respectfully requested.

In the Office Action, claims 14-16 are rejected under 35 U.S.C. §103(a) over U.S. Patent No. 4,669,745 to Miki. This rejection is respectfully traversed.

No prima facie case of obviousness has been made by the Patent Office. In fact, the Patent Office admits that Miki fails to teach the claimed methods for obtaining a steering angle. Nonetheless, the Patent Office makes an unsubstantiated assertion that the methods would have been obvious "because these claims merely state a method of use of such control apparatus" (Office Action at bottom of pg. 4).

Nothing in Miki teaches or suggests to one of ordinary skill to calculate a plurality of target vehicle state quantities or to determine a reference rotational position based on a minimum difference between the target vehicle state quantities and actual vehicle state quantity as recited in claim 14 and similarly recited in claim 15. Moreover, nothing in Miki even suggests that the disclosed structure is capable of performing the recited methods. The only possible source of such teachings is impermissible hindsight consideration of Applicants' disclosure.

Accordingly, method claims 14-16 are not obvious in view of Miki and contain patentable subject matter. Withdrawal of the rejection is respectfully requested.

Claims 17-18 are added. Claims 17-18 are similar to claims 4 and 12 and specify that a target vehicle state quantity is determined for each 360° of rotation of the steering operator (steering wheel) within the rotation range of the steering operator. These claims are

allowable for their dependence on allowable base claims and for the additional features recited therein.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-18 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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